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ARMY ELECTRONICS COMMAND WHITE SANDS MISSILE RANGE N--ETC F/G 4/2
193018 GSRS MISSILE NOS. V-5/V-6, ROUND NOS. V-5/V-6 (11 JANUAR--ETC(U)
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21. ABSTRACT (Continue on reverse side if necessary and identify by block number) Meteorological data gathered for the launching of 19301B GSRS, Missile Numbers V-5/V-6, Round Numbers V-5/V-6, are presented in tabular form.		

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INTRODUCTION

19301B GSRS, Missile Numbers V-5/V-6, Round Numbers V-5/V-6, were launched from launcher 519 at LC-33, White Sands Missile Range (WSMR), New Mexico, at 0940/0941 HRS MST, 11 January 1978. The scheduled launch times were 0900/0901 HRS MST.

DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

1. Observations

a. Surface

(1) Standard surface observations to include pressure, temperature ($^{\circ}\text{C}$), relative humidity, dew point ($^{\circ}\text{C}$), density (gm/m^3), wind direction, wind velocity and cloud cover were made at the LC-33 Met Site at T-0 mins.

(2) Anemometer data were provided from existing pole mounted and tower mounted anemometers at LC-33. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

b. Upper Air

(1) Low level wind data were obtained from RAPTS-T-9 pibals observations at T-0 mins as follows:

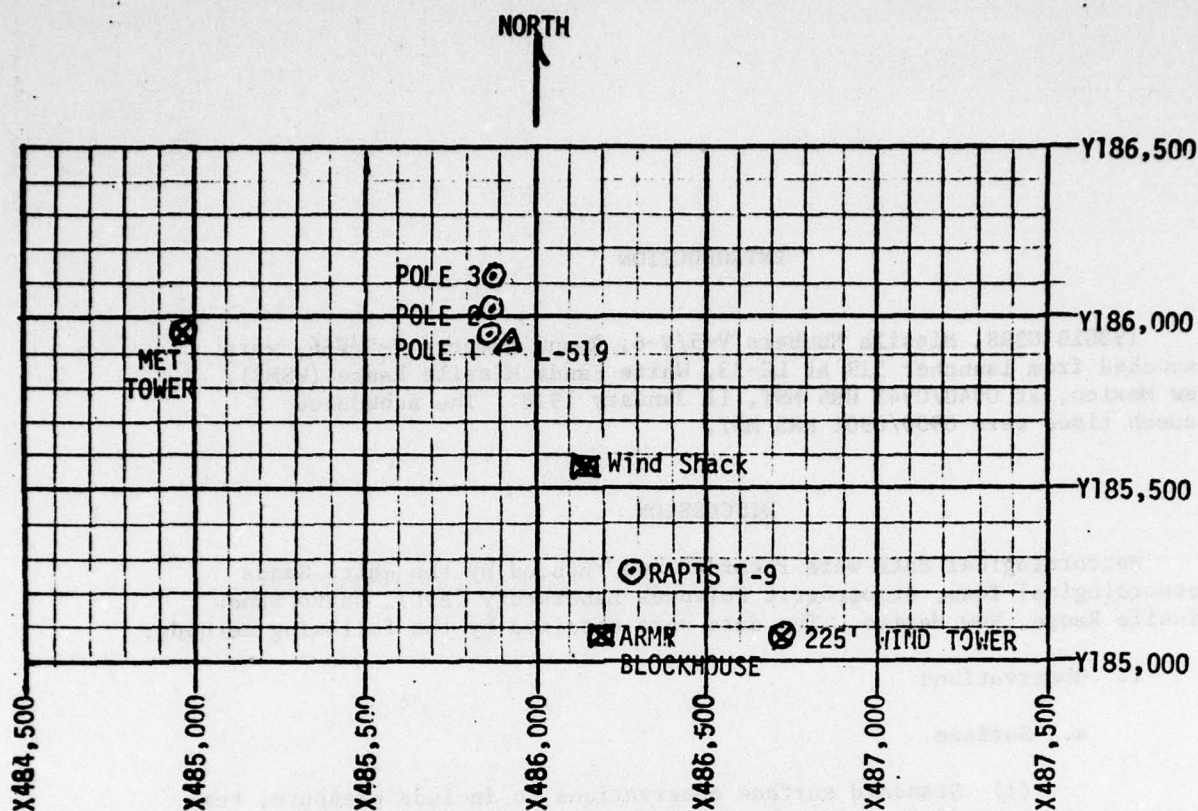
SITE & ALT.

LC-33 900 meters (15 meter incs)

APA 900 meters (30 meter incs)

SMR 900 meters (30 meter incs)

(2) Air structure data (rawinsonde) were collected at the SMR Met Site at T-0 mins. Data were collected from surface to 125% of apogee in 100 meter incs.



1. MET TOWER - 4 Bendix Model T-120 Anemometers at 12 ft, 62 ft, 102 ft and 202 ft with E/A recorders in Wind Shack.
2. POLE ANEMOMETER - Bendix Model T-120 with E/A recorders in Wind Shack
 - (a) Pole #1 - 38.7 ft
 - (b) Pole #2 - 53.0 ft
 - (c) Pole #3 - 83.6 ft
3. 225 FT WIND TOWER - 5 Bendix Model T-120 Anemometers at 35 ft, 88 ft, 128 ft, 168 ft and 200 ft with 5 X-Y visual indicators in Blockhouse.
4. RAPTS T-9 - Radar Automatic Pilot-Balloon Tracking System T-9 Radar

The data are presented in the following tabulations:

ELEVATION	3,980.0	FEET/MSL
PRESSURE	882.9	MBS
TEMPERATURE	11.9	°C
RELATIVE HUMIDITY	58	%
DEW POINT	3.9	°C
DENSITY	1,074	GM/M ³
WIND SPEED	04	MPH
WIND DIRECTION	165	DEGREES
CLOUD COVER	8 1	Sc Ac

TABLE I. SURFACE OBSERVATIONS TAKEN AT LC-33,
0943 HRS MST/11 JANUARY 1978

HEIGHT (FEET)	DIRECTION (DEGREES)	SPEED (MPH)	HEIGHT (FEET)	DIRECTION (DEGREES)	SPEED (MPH)
SUR	220	20	2100	259	43
100	212	22	2200	262	50
200	212	22	2300	261	44
300	232	27	2400	257	41
400	246	25	2500	251	43
500	252	26	2600	254	41
600	258	23	2700	251	41
700	258	31	2800	251	43
800	249	33	2900	253	43
900	246	33	3000	250	44
1000	240	31	3100	251	43
1100	244	30	3200	254	39
1200	240	36	3300	252	44
1300	241	35	3400	250	45
1400	249	35	3500	249	41
1500	249	35	3600	251	41
1600	252	32	3700	253	41
1700	251	37	3800	255	42
1800	245	41	3900	254	40
1900	258	43	4000	250	38
2000	249	42	4100	247	36

TABLE II. RAPTS-T-9 PILOT-BALLOON-MEASURED WIND DATA,
SMR AT 0940 HRS MST/11 JANUARY 1978
19301B GSRs, MISSILE NOS. V-5/V-6, ROUND NOS. V-5/V-6

PIBAL RELEASE POINT WSTM COORDINATES:

X = 472,441.28 Y = 214,137.54 Z = 3,999.00

APPROXIMATELY: 8 MILES NORTH OF LAUNCHER.

NOTE: WIND DIRECTION DATA ARE REFERENCED TRUE NORTH.

HEIGHT (FEET)	DIRECTION (DEGREES)	SPEED (MPH)
4200	248	39
4300	250	42
4400	247	34
4500	249	33
4600	246	37
4700	243	38
4800	247	37
4900	248	39
5000	254	37
5100	260	36
5200	262	35
5300	263	35
5400	264	33
5500	268	32
5600	274	29

HEIGHT (FEET)	DIRECTION (DEGREES)	SPEED (MPH)
5700	274	28
5800	272	27
5900	272	27
6000	270	28
6100	279	30
6200	277	32
6300	282	29
6400	272	32
6500	282	30
6600	282	33
6700	285	31
6800	278	29
6900	274	29
7000	270	31

TABLE II. (CONT)

NOTE: WIND DIRECTION DATA ARE REFERENCED TRUE NORTH.

HEIGHT (FEET)	DIRECTION (DEGREES)	SPEED (MPH)
SUR	165	04
50	167	05
100	174	05
150	180	05
200	186	05
250	191	05
300	195	06
350	195	06
400	202	07
450	201	06
500	198	05
550	196	06
600	215	10
650	212	10
700	211	10
750	200	09
800	194	08
850	183	08
900	171	07
950	175	07
1000	179	07

HEIGHT (FEET)	DIRECTION (DEGREES)	SPEED (MPH)
1050	214	01
1100	238	01
1150	199	05
1200	212	05
1250	236	04
1300	262	04
1350	259	03
1400	245	02
1450	223	02
1500	169	02
1550	189	03
1600	206	03
1650	216	05
1700	224	07
1750	229	08
1800	237	10
1850	246	12
1900	257	13
1950	266	13
2000	275	14
2050	275	14

TABLE III. RAPTS-T-9 PILOT-BALLOON-MEASURED WIND DATA,
LC-33 AT 0941 HRS MST/11 JANUARY 1978
19301B GSRS, MISSILE NOS. V-5/V-6, ROUND NOS. V-5/V-6

PIBAL RELEASE POINT WSTM COORDINATES:

X = 484,982.64 Y = 185,957.73 Z = 3,983.0

APPROXIMATELY: 815 FEET SSE OF LAUNCHER.

NOTE: WIND DIRECTION DATA ARE REFERENCED TRUE NORTH.

HEIGHT (FEET)	DIRECTION (DEGREES)	SPEED (MPH)
2100	274	14
2150	276	14
2200	281	15
2250	282	13
2300	284	14
2350	283	14
2400	292	16
2450	289	13
2500	288	12
2550	288	12

HEIGHT (FEET)	DIRECTION (DEGREES)	SPEED (MPH)
2600	287	12
2650	286	13
2700	286	13
2750	284	13
2800	284	12
2850	282	12
2900	280	12
2950	275	12
3000	269	11

TABLE III. (CONT)

NOTE: WIND DIRECTION DATA ARE REFERENCED TRUE NORTH.

HEIGHT (FEET)	DIRECTION (DEGREES)	SPEED (MPH)	HEIGHT (FEET)	DIRECTION (DEGREES)	SPEED (MPH)
SUR	250	18	1600	270	19
100	205	05	1700	265	19
200	235	11	1800	265	18
300	245	16	1900	260	20
400	250	14	2000	260	22
500	245	12	2100	260	22
600	235	17	2200	260	25
700	235	15	2300	260	24
800	235	14	2400	260	23
900	240	16	2500	255	22
1000	245	17	2600	255	19
1100	235	11	2700	255	20
1200	240	16	2800	260	19
1300	240	19	2900	265	21
1400	255	21	3000	255	20
1500	260	20			

TABLE IV. RAPTS-T-9 PILOT-BALLOON-MEASURED WIND DATA,
APACHE AT 1000 HRS MST/11 JANUARY 1978
19301B GSRs, MISSILE NOS. V-5/V-6, ROUND NOS. V-5/V-6

PIBAL RELEASE POINT WSTM COORDINATES:

X = 481,338.60 Y = 267,644.40 Z = 3,962.07

APPROXIMATELY: 16 MILES NORTH OF LAUNCHER.

NOTE: WIND DIRECTION DATA ARE REFERENCED TRUE NORTH.

T-TIME (SEC)	SPEED (MPH)	DIR DEG
-30.0	04	198
-20.0	03	201
-10.0	03	202
-00.00	03	204
+10.00	01	198
+20.00	00	000
+30.00	03	198

TABLE V. ANEMOMETER-MEASURED WIND SPEED AND DIRECTION, POLE 38.7 FT
LAUNCHED FROM LC-33/11 JANUARY 1978, AT 0941 MST
19301B GSRS, MISSILE NO. V-5, ROUND NO. V-5

WSTM COORDINATES: X = 485,874.29 Y = 185,958.90 Z = 4,018.74 (VANE)

NOTE: WIND DIRECTION DATA ARE REFERENCED TRUE NORTH.

T-TIME (SEC)	SPEED (MPH)	DIR DEG
-30.0	04	198
-20.0	03	201
-10.0	03	202
-00.00	02	195
+10.00	02	195
+20.00	00	000
+30.00	01	213

TABLE VI. ANEMOMETER-MEASURED WIND SPEED AND DIRECTION, POLE 38.7 FT
RELEASED FROM LC-33/11 JANUARY 1978, AT 0943 MST
19301B GSRS, MISSILE NO. V-6, ROUND V-6

WSTM COORDINATES: X = 485,874.29 Y = 185,958.90 Z = 4,018.74 (VANE)

NOTE: WIND DIRECTION DATA ARE REFERENCED TRUE NORTH.

T-TIME (SEC)	SPEED (MPH)	DIR DEG
-30.0	04	192
-20.0	06	200
-10.0	06	201
-00.00	06	201
+10.00	03	202
+20.00	02	207
+30.00	00	000

TABLE VII. ANEMOMETER-MEASURED WIND SPEED AND DIRECTION, POLE 53.0 FT
RELEASED FROM LC-33/11 JANUARY 1978, AT 0941 MST
19301B GSRS, MISSILE NO. V-5, ROUND NO. V-5

WSTM COORDINATES: X = 485,874.93 Y = 186,012.00 Z = 4,033.57 (VANE)

NOTE: WIND DIRECTION DATA ARE REFERENCED TRUE NORTH.

T-TIME (SEC)	SPEED (MPH)	DIR DEG
-30.0	04	192
-20.0	06	200
-10.0	06	201
-00.00	03	192
+10.00	03	195
+20.00	02	244
+30.00	04	220

TABLE VIII. ANEMOMETER-MEASURED WIND SPEED AND DIRECTION, POLE 53.0 FT
RELEASED FROM LC-33/11 JANUARY 1978, AT 0943 MST
19301B GSRS, MISSILE NO. V-6, ROUND NO. V-6

WSTM COORDINATES: X = 485,874.93 Y = 186,012.00 Z = 4,033.57 (VANE)

NOTE: WIND DIRECTION DATA ARE REFERENCED TRUE NORTH.

T-TIME (SEC)	SPEED (MPH)	DIR DEG
-30.0	00	000
-20.0	02	209
-10.0	01	207
-00.00	01	204
+10.00	02	202
+20.00	02	202
+30.00	01	202

TABLE IX. ANEMOMETER-MEASURED WIND SPEED AND DIRECTION, TOWER LEVEL 62'
RELEASED FROM LC-33/11 JANUARY 1978, AT 0941 MST
19301B GSRS, MISSILE NO. V-5, ROUND NO. V-5

WSTM COORDINATES: X = 484,982.64 Y = 185,957.73 Z = 3,983.00 (BASE)

NOTE: WIND DIRECTION DATA ARE REFERENCED TRUE NORTH.

T-TIME (SEC)	SPEED (MPH)	DIR DEG
-30.0	00	000
-20.0	02	209
-10.0	01	207
-00.00	00	000
+10.00	00	000
+20.00	00	000
+30.00	00	000

TABLE X. ANEMOMETER-MEASURED WIND SPEED AND DIRECTION, TOWER LEVEL 62'
RELEASED FROM LC-33/11 JANUARY 1978, AT 0943 MST
19301B GSRS, MISSILE NO. V-6, ROUND NO. V-6

WSTM COORDINATES: X = 484,982.64 Y = 185,957.73 Z = 3,983.00 (BASE)

NOTE: WIND DIRECTION DATA ARE REFERENCED TRUE NORTH.

T-TIME (SEC)	SPEED (MPH)	DIR DEG
-30.0	05	200
-20.0	03	200
-10.0	02	200
-00.00	02	198
+10.00	03	198
+20.00	03	201
+30.00	02	202

TABLE XI. ANEMOMETER-MEASURED WIND SPEED AND DIRECTION, TOWER LEVEL 102'
RELEASED FROM LC-33/11 JANUARY 1978, AT 0941 MST
19301B GSRS, MISSILE NO. V-5, ROUND NO. V-5

WSTM COORDINATES: X = 484,982.64 Y = 185,957.73 Z = 3,983.00 (BASE)

NOTE: WIND DIRECTION DATA ARE REFERENCED TRUE NORTH.

T-TIME (SEC)	SPEED (MPH)	DIR DEG
-30.0	05	200
-20.0	03	200
-10.0	02	200
-00.00	00	000
+10.00	00	000
+20.00	00	000
+30.00	00	000

TABLE XII. ANEMOMETER-MEASURED WIND SPEED AND DIRECTION, TOWER LEVEL 102'
RELEASED FROM LC-33/11 JANUARY 1978, AT 0943 MST
19301B GSRS, MISSILE NO. V-6, ROUND NO. V-6

WSTM COORDINATES: X = 484,982.64 Y = 185,957.73 Z = 3,983.00 (BASE)

NOTE: WIND DIRECTION DATA ARE REFERENCED TRUE NORTH.

T-TIME (SEC)	SPEED (MPH)	DIR DEG
-30.0	05	213
-20.0	06	210
-10.0	06	210
-00.00	05	210
+10.00	05	210
+20.00	05	210
+30.00	06	210

TABLE XIII. ANEMOMETER-MEASURED WIND SPEED AND DIRECTION, TOWER LEVEL 202'
RELEASED FROM LC-33/11 JANUARY 1978, AT 0941 MST
19301B GSRS, MISSILE NO. V-5, ROUND NO. V-5

WSTM COORDINATES: X = 484,982.64 Y = 185,957.73 Z = 3,983.00 (BASE)

NOTE: WIND DIRECTION DATA ARE REFERENCED TRUE NORTH.

T-TIME (SEC)	SPEED (MPH)	DIR DEG
-30.0	05	213
-20.0	06	210
-10.0	06	210
-00.00	06	210
+10.00	06	210
+20.00	05	210
+30.00	05	210

TABLE XIV. ANEMOMETER-MEASURED WIND SPEED AND DIRECTION, TOWER LEVEL 202'
RELEASED FROM LC-33/11 JANUARY 1978, AT 0943 MST
19301B GSRS, MISSILE NO. V-6, ROUND NO. V-6

WSTM COORDINATES: X = 484,982.64 Y = 185,957.73 Z = 3,983.00 (BASE)

NOTE: WIND DIRECTION DATA ARE REFERENCED TRUE NORTH.

GEODETIC COORDINATES
32.43334 LAT DEG
106.42307 LON DEG

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SIGNIFICANT LEVEL DATA

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TABLE XV.

STATION ALTITUDE 3997.30 FEET MSL

11 JAN. 73 394J 4RS MST

ASCENSION NO. 3

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE		REL. HUM. PERCENT
		AIR DEGREES	DEWPOINT CENTIGRADE	
880.1	3997.3	8.2	3.5	72.0
874.3	4180.9	9.5	-1.2	47.0
850.0	4944.1	6.3	-1.3	58.0
814.8	6077.4	3.6	-3.9	57.0
700.0	10057.2	-4.1	-12.7	51.0
646.3	12111.1	-9.5	-17.0	54.0
636.3	12505.4	-10.7	-16.7	61.0
627.3	12863.9	-11.9	-14.6	80.0
588.3	14464.3	-15.4	-21.5	53.0
550.2	16112.5	-18.6	-22.7	70.0
541.4	16505.9	-19.5	-26.9	52.0
518.3	17562.6	-22.0	-28.9	53.0
500.0	18427.9	-22.8	-36.9	26.0
485.3	19143.1	-24.2	-35.8	33.0
460.3	20393.4	-27.5	-39.4	31.0

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GEODETIC COORDINATES
32.48034 LAT DEG
106.42337 LONG DEG

UPPER AIR DATA
J110060003
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TABLE XVI.

STATION ALTITUDE 3997.33 FEET MSL
11 JAN. 78
ASCENSION NO. 3
0940 HRS MST

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE				DIRECTION DEGREES(TN)	SPEED KNOTS	
3997.3	880.1	8.2	3.5	72.0	1066.1	654.6	240.0	20.0	1.000280
4000.0	880.0	8.2	3.4	71.6	1085.9	654.6	240.0	20.0	1.000277
4500.0	864.1	8.2	-1.2	51.6	1067.4	654.2	244.6	23.0	1.000265
5000.0	848.2	5.2	-1.5	53.0	1055.3	651.9	248.2	26.2	1.000262
5500.0	832.5	5.1	-2.6	57.5	1040.0	650.6	250.9	29.4	1.000256
6000.0	817.2	4.0	-3.7	57.1	1025.0	649.2	253.2	32.6	1.000251
6500.0	801.8	3.0	-4.9	56.4	1009.6	648.0	255.2	33.5	1.000246
7000.0	785.7	2.0	-6.0	55.6	994.2	646.8	257.3	33.6	1.000241
7500.0	771.9	1.0	-7.1	54.9	979.1	645.6	259.3	33.5	1.000236
8000.0	757.3	-0.0	-8.2	54.1	964.3	644.4	261.2	32.4	1.000232
8500.0	743.0	-1.0	-9.3	53.4	949.6	643.2	263.3	31.4	1.000227
9000.0	729.0	-2.0	-10.4	52.6	935.2	642.0	265.4	30.2	1.000223
9500.0	715.3	-3.0	-11.5	51.9	921.0	640.8	267.2	28.2	1.000218
10000.0	701.3	-4.0	-12.6	51.1	907.1	639.6	269.3	26.3	1.000214
10500.0	688.3	-5.2	-13.6	51.6	893.9	638.0	271.7	24.3	1.000210
11000.0	675.0	-6.5	-14.7	52.4	881.0	636.4	274.4	23.0	1.000207
11500.0	661.9	-7.9	-15.7	53.1	868.4	634.8	277.5	21.8	1.000203
12000.0	649.1	-9.2	-16.8	53.3	855.9	633.2	280.5	20.7	1.000200
12500.0	636.4	-10.7	-17.7	60.9	843.9	631.5	282.2	20.1	1.000197
13000.0	623.9	-12.2	-18.2	73.1	831.9	629.7	284.0	19.5	1.000196
13500.0	611.5	-13.3	-19.4	71.3	819.0	628.3	284.3	19.6	1.000191
14000.0	599.4	-14.4	-19.5	64.4	806.2	626.9	284.2	19.9	1.000187
14500.0	587.5	-15.5	-21.8	58.3	793.7	625.6	286.4	17.9	1.000183
15000.0	575.5	-16.4	-22.0	61.9	781.5	624.4	289.3	15.5	1.000180
15500.0	564.1	-17.4	-22.3	65.5	767.8	623.2	296.4	15.6	1.000177
16000.0	552.7	-18.4	-22.5	69.2	755.3	622.0	298.2	17.2	1.000174
16500.0	541.5	-19.6	-26.8	52.3	743.6	620.5	294.1	21.1	1.000170
17000.0	530.5	-20.7	-27.9	52.5	731.9	619.1	287.7	22.9	1.000167
17500.0	519.6	-21.9	-28.8	52.9	720.1	617.7	281.6	23.9	1.000164
18000.0	509.0	-22.4	-32.4	39.4	706.9	617.0	275.4	23.5	1.000160

STATION ALTITUDE 3997.30 FEET MSL
 11 JAN. 78
 ASCENSION NO. 3

UPPER AIR DATA
 J110050003
 S M R
 TABLE XVI. (CONT)

GEOMETRIC COORDINATES
 32.48034 LAT DEG
 106.42337 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
						DIRECTION DEGREES(TN)	SPEED KNOTS	
16500.0	498.5	-22.9	26.7	693.9	616.3	272.2	21.7	1.000156
19000.0	488.2	-23.7	31.6	682.3	615.1			1.000151
19500.0	478.1	-25.1	32.4	671.4	613.6			1.000151
20000.0	468.1	-25.5	31.6	660.9	611.9			1.000149

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STATION ALTITUDE 3997.30 FEET MSL
11 JAN. 73
ASCENSION NO. 3

MANDATORY LEVELS
0110060003
S M R
TABLE XVII.

GEOMETRIC COORDINATES
32.43334 LAT DEG
106.42307 LON DEG

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM.	WIND DATA	
MILLIBARS	FEET	AIR DEGREES	DEWPOINT CENTIGRADE	PERCENT	DIRECTION DEGREES(TN)	SPEED KNOTS
853.3	4943.	6.3	-1.3	58.	247.8	25.8
800.0	6564.	2.8	-5.0	56.	255.5	33.5
750.0	8269.	-0.5	-8.7	54.	262.3	31.9
700.0	10067.	-4.1	-12.7	51.	269.7	26.0
650.0	11957.	-7.1	-16.7	54.	283.4	23.7
600.0	13979.	-14.3	-19.5	65.	284.2	19.9
550.0	16125.	-19.5	-22.3	70.	295.9	18.2
500.0	18435.	-22.8	-36.4	26.	272.4	22.0

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